

Richards, Henry.

Henry Marion Howe.

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Harvard Graduates' Mag.

V. 31, No. 121, 1922

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HENRY MARION HOWE

organized, and the information secured should be used in the various school courses. To illustrate: a visit to the State House would provide material for reports in English, history, or civics; a visit to a factory might provide material for English, mathematics, science, and geography. Taking the school out of the narrow confines of a building and bringing the pupils into intimate contact with the work of the world is a worthy aim for any educational institution.

The programme of work which I have described for a class of mentally superior children will provide a broad preparation for college study and will develop students of ability and character. Two great factors determine to a very large extent the success of an individual: moral character and intellectual capacity. Unless the pupil of superior intellect is provided with opportunities which challenge his superior capacity, and unless he is expected and required to give his maximum effort, there is great danger that he will have a flabby character.

HENRY MARION HOWE, '69

By HENRY RICHARDS, '69

IF genius were to be defined as the power of original accomplishment, Henry Marion Howe was certainly a genius of no mean order. Reading what has been said of him by his associates and fellow-workers; considering the long list of honors bestowed upon him, and regarding the list of his works with the respectful awe of a layman, the impression of originality and accomplishment leaves one almost breathless. At any rate, I think this impression is general among his classmates and early friends, who knew him as a light-hearted boy, full of practical jokes; a boy who could say, after a three months' suspension from college, "I was absent from college the first term of the sophomore year, on account of a disagreement with the Faculty, arising from what seemed to me harmless joking. The Faculty did not think the joke appropriate, however — misguided men!"

By what process of development could this boy, debonair, full of fun and mischief, devoted to dancing, occupied, apparently, with nothing more serious than the *joie de vivre*, have become the man whom Professor Sauveur has called "Lover of justice and of humanity; public servant and public benefactor; master of the English language; loyal and devoted friend; untiring and unselfish worker in an important field of science; stimulating teacher, inspiring investigator and generous collaborator; voyager in realms but dimly perceived by

bright pupils are completely lost when an algebra problem appears in another branch of mathematics. Really, the main reason for pursuing mathematical work is to acquire a facility in using it in the various situations which arise in technical courses or in actual work in which one may be engaged.

The reader has been informed as to how the language and mathematics courses are to be enriched. Now what shall be the procedure in history and sciences? History is not satisfactorily taught in most of our secondary schools. Usually the pupil pursues one course of ancient history, modern European history, or United States history. He knows a little about a limited field, but has no general historical knowledge. A class of gifted children should be given history in each of the four years. During the first three years there should be a background built up for the work of the fourth year. There should be a general survey of history from early times, beginning with ancient history and followed by European history, then United States history. These courses will suffice to provide a setting for the main course in history, which will be given in the senior year: namely, "The Problems of Modern Civilization as they concern the United States." The enrichment in the history instruction will be in the giving of the final course, which really is the essential.

In the field of science these superior pupils should be given introductory courses which will open up the general field of science and ensure an acquaintance with elementary physics, chemistry, astronomy, biology, and other sciences which can be pursued with profit by secondary-school pupils. With the background obtained through the general science work, which may be distributed over two or three years, an intensive course in physics or chemistry may then be pursued.

These pupils should also have opportunity to pursue courses in art, music, and to participate in activities which will train them to make worthy use of their leisure. I refer to such activities as debating, glee, mandolin, and orchestra work, dramatics, and the various athletic games which are included in a complete regimen of physical training.

In addition to pursuing classroom courses, the children of superior mentality will find time to spend several hours a week in the laboratories outside the school building. I refer to factories, museums, civic buildings, and places of historic and artistic interest. Through their contact with the outside world they will gain experiences and a fund of information which will make their school work more real. These trips should become a part of the regular programme of the school, carefully

your fellow-workers; lone explorer of fields destined to yield rich harvest to future generations; man of genius, honored and loved the world over?"

It is common to account for the doings or misdoings of our friends, their accomplishments and their failures, by a facile reference to heredity, which seldom takes account of any ancestors but one or two in the direct male line, with the addition, at best, of the mother and a grandmother or two. But without following popular notions of heredity, it is plain that every man derives from an infinite number of ancestors, in lines converging to a centre to produce an original combination. Here scientific theory coincides with the facts observed by every father of children — that every child born into the world is an individual and unique personality. This is the explanation, as I see it, of the transformation I have noted in Howe. He, like the rest of us, was original and unique in his combination of inherited characteristics, attributes and aptitudes; but while it happens with most men that many of what we deem fortunate inheritances tend to neutralize each other and cancel out in the equation of life, the case was quite different with Howe. In his case, it is clear, the heritage of what seemed in his youth to be rather incongruous attributes and aptitudes proved a most happy combination of supplementary qualities, and worked out into an harmonious whole of truly extraordinary power.

Before dismissing the working-out of heritage in Howe, I must mention one trait, inherited directly from his father, Dr. Samuel Gridley Howe, the eminent philanthropist, humanitarian, and philhellene; the sense of humor, strong in father and son, which ran in both to a love of practical jokes that never left either of them through life. It is recorded of Dr. Howe that when an undergraduate at Brown University he led the president's old white horse to the very top of one of the college buildings and left him there overnight. Many years after, Dr. Howe, "being in Providence at Commencement time, went to call on his old president, Dr. Messer, then living in retirement, for the express purpose of apologizing to him for the 'monkey shine.' The old gentleman received him with a look of alarm, and, motioning him to a chair, took his own seat at some distance, keeping a wary eye on his former pupil. Dr. Howe began his apology, but Dr. Messer interrupted him. 'I declare, Howe,' he cried, 'I am afraid of you now! I'm afraid there will be a torpedo under my chair before I know it'; and the present writer has a vivid recollection of a practical joke played by the distinguished doctor in one of the last years of his life.

As with the father, so it was with the son, in this respect; and there can be no doubt that many of his contemporaries regarded "H. M.," as we used to call him, with feelings akin to those which Dr. Messer expressed when Dr. Howe came to apologize for his pranks. Nobody ever knew what "H. M." would be up to next. The strong impression created by what was, after all, but a superficial propensity may have accounted for the fact that though he had a winning personality, showed marked ability, was notably strong of body, a good athlete, with a cultivated taste in music and a beautiful baritone voice, yet he had few intimates in college.

But the most fortunate heredity can do no more than furnish the tools of life. Character alone can determine what the man shall do with them. And here the most casual review of Howe's life makes it clear that he wrought mightily, and that in the supreme accomplishment of character he stood head and shoulders above many of his more worldly-fortunate fellows.

He was born March 2, 1848, in Boston, the son of Dr. Samuel Gridley and Julia Ward Howe — a high parentage indeed! During his earlier years he was trained by tutors, of whom Dr. Howe had always a reserve corps at command in the patriot Polish and Greek refugees who looked to him as a combination of father and beneficent providence. With such tutors, and in the atmosphere of his home, young Howe was steeped from infancy in the very essence of cultivation. Literature, languages, music, art, philanthropy, patriotism, and public service formed the very air he breathed, and laid the foundation on which he built. The setting of his early life was a determining factor in his later accomplishment, as may be seen from his expressed resolution, when he reached the stature of full manhood, that, though he could never hope to equal the accomplishment of such giants as his parents, he would devote such talents as he had to the service of humanity. And how nobly he fulfilled this high resolve!

If one were to invoke the aid of a fairy godmother to endow a child with the qualities essential to success in any high endeavor, the best that one could wish, surely, would be a strong imagination, an active sense of humor, and a careful regard for detail — on which strong stock one should hope that education might graft the power of patient, persistent, hard work. Howe had these three qualities from birth. They were revealed, sometimes in untoward ways, all through his school and college days, but the power of hard work was not to be achieved until later, when experience, observation and study should

have ripened his character. In the years of his formal education — at the Boston Latin School, from his eleventh to his seventeenth year, and at Harvard until his graduation at twenty-one — he seems to have gone through a process of slow, insensible incubation, through which his natural qualities were gradually ripened. He gained knowledge, of course, and of many things, but he was no star performer on the academic field, and he discovered in himself no bent or determined purpose. He simply had a wonderful time — and ripened, gradually but surely.

I do not know what first moved him to go to the Massachusetts Institute of Technology. Possibly it was the careful regard for detail, of which I have spoken, which first awakened in him a consciousness that his future course of life must lie in the field of science, among objective things. At any rate, he entered "Tech" in the fall of 1869, and there first revealed the capacity for hard work which so distinguished him in later years. In 1871 he graduated, with the old-fashioned title of "Graduate in the Department of Geology and Mining Engineering," and went next to Troy, as a student in the steel works. At Troy he worked hard, but his life there was by no means all hard work, for his vivaciousness and *camaraderie*, his high spirits and his sense of humor, adorning but not concealing the solidity of his character, soon made him a favorite in the society of a place full of gayety. His letters of that time tell of the heat and grime of the steel works, but even more of the dances, dinners, and routs for which he was always in demand.

From this time on it might truly be said that his life was one long romance — a romance of hard work and achievement, for few men have achieved more within the compass of a lifetime. Romance first touched him in Troy, when he met Miss Fannie Gay of that city, whom he married April 9, 1874, and of whom Howe's friend and co-worker, Mr. Bradley Stoughton, has said: "She has been not only his constant companion and his sympathetic comrade in work, but, by her actual assistance, has made it possible for him to accomplish some of the great tasks he undertook. . . . She not only guided tactfully, but spared him many interruptions and directed his efforts in the lines of greatest effectiveness." In short, it was largely through her understanding and loyal devotion that her husband was enabled to do work which, by its mere amount, seemed beyond even the physical power of any one man.

From 1872, when he completed his practical studies in Troy, until

the end came, Howe's life may be divided roughly into two periods — the first from 1872 to 1882, during which, in one place or another, and in three countries, he was superintendent, manager, designer or builder of metallurgical works for a number of companies — the second running from 1883 to 1922, during which he turned aside from the practical work in which he had been engaged to take up the purely scientific side of his profession.

During the first period — in steel works at Joliet, and Pittsburgh, and later in the work of improving, designing, and building copper-smelting plants, in Chile, the Province of Quebec, and at Bergen Point, New Jersey — still later as manager of the Pima Copper Mining and Smelting Company, Arizona — he was in line for signal material success; to make a great fortune and become a "captain of industry" — a most alluring prospect. If we could understand all the motives which prompted him to turn aside from this prospect and choose, quite deliberately, to explore what seem to lesser men the arid and unrewarding fields of pure science, we should have the key to Howe's character. Yet though the whole may not be clear, it is possible to understand in part. Of one thing, at any rate, I am sure; material success, with all that it implies, was far from being an alluring prospect to him, for though he had a worthy and right ambition to establish himself and his family, and a proper contempt for men who, with a fair chance, cannot make good, the gods of the market, money, position and power, meant nothing to him. He may have found, too, that he was not altogether adapted to the comparatively crude work of handling masses of men in great metal works — that he was too fine a tool to be put to such rough purposes. And then he must have realized, in all his work up to the time of the change, that the whole metallurgical world was groping amid an amazing accumulation of facts, not as yet tabulated, verified, explained or logically interpreted — that here was a great need, in a field worthy of all his best powers. But the most compelling motive, I am convinced, was the example of his father and mother, and his own early resolve "that, though he could never hope to equal the accomplishment of such giants as his parents, he would devote such talents as he had to the service of humanity."

So he made the change, by establishing himself in Boston as a consulting metallurgist, and accepting the position offered him as Lecturer on Metallurgy at the Massachusetts Institute of Technology.

Such was the setting of what I have called the second period of

Howe's life. It looks simple in retrospect, but the task for him was immense. At thirty-five, already well established and with habits formed, he had to turn from the practical to the theoretical side of his profession; to concern himself with the underlying realities on which a great industry may be developed rather than with the objective things with which it deals; to move from factory to laboratory; to change from furnaces to books; and, still more, to establish in himself the habit of hard, unrelenting work on his own responsibility. Looking back at that time, I realize what a great task he had set himself, and see clearly, that, for a man so delicately organized and sensitive as Howe, this task might well have overwhelmed him but for the constant, unremitting care of his faithful wife. Seeing him in memory, as he worked at this time, I think of the great Malet locomotives on the Reading line, hauling coal over the mountains. The pulling power of these locomotives is known to a nicety, and the cars are loaded accordingly, to the last pound. So Howe worked, knowing his own capacity, feeling that he had just so much power to devote to the service of mankind, and handling himself in such a way as to make the last ounce of this power productive.

You never can hold down a man who is bound to rise, and the lectureship at the Institute of Technology was, I can but think, a holding-down for Howe — though quite unconsciously on both sides. The fourteen years in Boston were years of hard struggle, and though he pressed on, never faltering, he could not strike his full stride until 1897, when, at the age of forty-nine, he was appointed Professor of Metallurgy in Columbia University. From that time on to the end, the romance of his life — the romance of high purpose nobly achieved — ran its true course.

Few men have been more highly honored than Howe, and still fewer more justly; for steel is the very basis on which the whole material structure of our civilization rests, and if you add to those who manufacture steel, or implements of steel, those who use such implements and those who are dependent on their use, you have the whole population of the civilized world and a large proportion of the uncivilized. He, therefore, who, by quiet and persistent labor, has contributed largely to the science on which the great steel industry rests is rightly honored.

A true son of Harvard, Howe was given the degree of A.M. in 1872 and of LL.D. in 1905 by his alma mater. From Lafayette he received the degree of LL.D. in 1905 and that of Sc.D from the University of

Pittsburgh in 1915. He was made a Knight of the Order of St. Stanislas (Russia) and a Chevalier of the Legion of Honor of France, and he was awarded the Bessemer Medal of the Iron and Steel Institute of Great Britain, the Eliot Cresson Medal of the Franklin Institute of Philadelphia, the Gold Medal of the *Verein zur Beförderung des Gewerbflusses* of Berlin, the Gold Medal of the *Société d'Encouragement pour l'Industrie Nationale* of France, and the John Fritz Medal of the American Institute of Mining Engineers. In addition to these degrees, orders, and medals which he received, he was elected to presidencies, vice-presidencies, fellowships, life memberships, and honorary memberships in more than a score of the most important scientific and technical societies in this country and abroad.

Howe contributed several hundred important professional papers to scientific journals in this country and Europe, but his principal works were the "Metallurgy of Steel" (1891), "Metallurgical Laboratory Notes" (1902), translated into French, "Iron, Steel and Other Alloys" (1902), translated into Russian, "Metallography of Steel and Cast Iron" (1916), article on "Iron and Steel" for the tenth edition of the *Encyclopædia Britannica* (1902), and a second article on the same subject for the eleventh edition of the *Encyclopædia Britannica* in 1910.

Of the "Metallurgy of Steel" and the "Metallography of Steel," Dr. Rossiter W. Raymond has said: "The first of these books was an amazing accumulation of reported facts, tabulated, verified, and explained as far as was then practicable. The last is an equally amazing array of facts, but now sifted, tested, logically arranged, and luminously interpreted. . . . The first was a heap, parts of which had been sorted; the last was an edifice. To produce the first required intelligent and inexhaustible industry and critical discernment. The second exhibits the creative genius of an architect. Between the two lies the history of a science, to every stage of which this builder has made some important contribution."

After his appointment to the professorship in Columbia, Howe lived in New York, where students who needed advice came to him almost automatically. He would invite one or another to his house, from time to time, for luncheon and a quiet talk, or, of a Sunday evening, he would gather a little group of his particular boys — the choice spirits among the students who revered and loved him. With work laid aside, he was like a boy with the rest, all distinctions of age and dignities forgotten, and became the comrade and friend — ready to

advise or help, and more than ready to play — scintillating with humor, and keeping all on the *qui vive* with the alertness and acuteness of his talk. Few of those who enjoyed this comradeship will ever forget those happy days.

A story is told of him which will illustrate his quickness of wit: The International Association for Testing Materials had been invited to hold its annual congress in this country for the first time, and had accepted the invitation. For two years committees of arrangements had been busy, making every provision for the important occasion, and, in due time, the delegates began to arrive from all quarters of the world. But something happened to throw one of the hotels engaged out of commission, and there were last-minute scramblings and rearrangements on the part of the committees. Out of the confusion, the fact emerged that a foreigner, a very important personage — a scientific luminary and a man of high title besides — had been allotted a small, inside room, opening on a fire-escape and that the important personage was very wroth — full of breathings and threatenings, and vowing that he would cut the whole congress and go home. The committee in charge came to Dr. Howe and told him their sad plight. He reflected an instant; then said in a flash, "I will see him," and went. Coming into the room where the foreign gentleman was fuming, Dr. Howe ignored his obvious ill-temper, greeted him with his sweetest smile, and said how delighted he was to hear that the committee had succeeded in providing a room with a fire-escape — "so hard to find — such a valuable life" — he was "distressed to think that such a life might have been risked in an ordinary room." So the Important One was not only appeased, but flattered, and boasted to all his *confrères* that he alone had a room with a fire-escape.

During all his later years — from the time he retired from active work at Columbia as Professor Emeritus — Howe lived in the home which he had built on a beautiful spot at Bedford Hills, New York. This place he called "Green Peace," the name being that which his mother gave to the lovely house and garden in South Boston where she had lived so long and happily. Peace, for him, meant freedom for uninterrupted work. But though he worked indefatigably during the last nine years of his life, withdrawn from all distractions in the home of his heart, his acute sense of family tenderness never forsook him. And here, when he was gripped in the long agony of his last illness, he faced forward as always, dismissing what came to him with merry

smile and quick humor, as things of no consequence. And here he died with a smile on his face.

At the presentation of the Fritz Medal, Dr. Ira N. Hollis said: "Science has three aspects: first, to discover truth and follow it; second, to employ the forces and materials of nature for the good of all mankind; third, to set us into closer accord with the will of God." In all three of these aspects, thus so well stated, Henry Marion Howe was the faithful man of science, the true servant of humanity.

FROM A GRADUATE'S WINDOW

NEARLY all Harvard men agree that the publicity given to the Harvard Faculty's discussion of what may frankly be termed **Racial groups at Harvard** the Jewish question is unfortunate; many of them think it unfortunate that the Faculty should have discussed the question at all. Officially to show consciousness of the existence of racial groups in the University is unlikely to serve the purpose of harmonious assimilation at which, it may be supposed, the University aims. For that reason, although it is desirable that a committee of the Faculty should consider measures by which candidates for admission to the University may be more thoroughly sifted, it is to be regretted that a part of the work assigned to that committee is a study of the subject of racial proportions in the whole body of students at Harvard. Such a study, although it may bring out some interesting facts, can hardly contribute anything relevant to the main issue, which is: In what way shall the regulations governing admission to Harvard be changed?

If regulations for admission are ever made that shall take account of other matters than the character, personality, mental ability, and scholastic attainments of the applicant, if they take account of race or creed, they can hardly fail to have mischievous results. Surely Harvard desires to draw to itself as students the best in every racial group in America, so long as the best in every group measure up to the standard that the University shall prescribe. Other colleges than Harvard have found that to require merely a certain standard of scholarship is an insufficient test and are trying other tests than that of scholarship. If Harvard adds new requirements, if in character, personality, and general mental ability as well as in scholarship it establishes a standard for admission, it will be able to exclude the undesirable candidates among those who satisfactorily pass the test

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